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Chris R. Zettinger

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EXAMINER

MOORE, IAN N

ART UNIT

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2616

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/606,948	Applicant(s) ZETTINGER ET AL.	
	Examiner Ian N. Moore	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4-25-05;10-10-06</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: **Protecting Switching without burdening the central switch fabric.**

Claim Objections

2. Claims 2 and 13 are objected to because of the following informalities:

Claim 2 recites, “the switch fabrics” in lines 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 13 is also objected for the same reason as set forth above in claim 2.

Appropriate corrections are required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-7,9, 12-18,20 and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Simons (US006332198B1).

Regarding Claims 1, 12 and 23, Simons discloses an apparatus (see FIG. 35A-B, a network device 540) processing a method (see FIG. 35A-B, devices must process steps) for switching signals (see col. 46, line 33-40; packets, frames, or cells) in a network (see FIG. 35, SONET, ATM, or MPLS network; see col. 45, line 20-33; see col. 46, line 16-27), comprising:

multiple first switch fabrics (see FIG. 35A-B, Switching Quadrants 1-4) to perform facility protection switching on the signals (see col. 45, line 60-67; see col. 49, line 8-25; each quadrants performs lines/facility redundancy/protection switching schemes (i.e. Automatic Protection Switching (APS), 1+1, 1:1, 1:N) on the packets/frames/cells); and

a second switch fabric (see FIG. 35A-B, switching Fabric Card 570) coupled to the first switch fabrics (see FIG. 35A-B, connecting with Quadrants 1-4) to switch a subset of the signals (see FIG. 35A-B, switching separated/divided/detached packets/cells/frames received from quadrants 1-4) in a non-facility protection switching manner among the first switch fabrics (see col. 45, line 40 to col. 46, line 30; see col. 47, line 53 to col. 48, line 11; see col. 50, line 60-67; switching fabric card does not perform lines/facility redundancy/protection switching schemes with/between the quadrants).

Regarding Claim 2 and 13, Simons discloses wherein the switch fabrics are coupled to a single point of control (see FIG. 35A, Processor 542 connects with quadrants 1-4 and switching fabric card 570; see col. 45, line 34, line 1-55).

Regarding Claim 3 and 14, Simons discloses wherein the first switch fabrics include less configuration than the second switch fabric (see FIG. 35 A-B, each quadrant 1-4 processes each received packet/frame/cell “locally” with less/small configuration. However, switching fabric card processes each receiving packet/frame/cell from the pluralities of quadrants

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“globally” with more/large configuration. Thus, it is clear that each quadrant has less/small configuration than the switching fabric card; see col. 45, line 34 to col. 46, line 15; see col. 50, line 60-67).

Regarding Claim 4 and 15, Simons discloses wherein the first switch fabrics include less granularity than the second switch fabric (see FIG. 35 A-B, each quadrant 1-4 processes each received packet/frame/cell “locally” with less/few granular/minute switching. However, switching fabric card processes each receiving packet/frame/cell from the pluralities of quadrants “globally” with more/large granular/minute switching. Thus, it is clear that each quadrant has less/few granular/minute switching than the switching fabric card; see col. 45, line 34 to col. 46, line 15; see col. 50, line 60-67).

Regarding Claim 5 and 16, Simons discloses wherein the first switch fabrics also perform local switching with the multiple first switch fabrics (see FIG. 35A-B, each quadrant 1-4 performs “local” switching from universal port card 554 to forwarding card 546; or performs “local” switching from one cross-connection card 562 in one quadrant to another cross-connection card in another quadrant; see col. 49, line 26 to col. 50, line 64).

Regarding Claim 6, Simons discloses redundant first (see FIG. 35A-B, quadrant 2 is redundant of quadrant 1 since the cross-connect card 562 are connected; see col. 49, line 8-67) or second switch fabrics (see FIG. 35A-B, redundant switching fabric card 570b; see col. 45, line 35-55; see col. 50, line 60-67).

Regarding Claim 7 and 18, Simons discloses wherein the first or second switch fabrics support Time Division Multiplexing (TDM) (see col. 46, line 15-30; TDM stream) or fixed-

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length switching (see col. 46 line 15-30; see col. 47, line 14 to col. 48, line 25; ATM cells (i.e. each ATM cell has fixed length 53 bytes).

Regarding Claim 9, Simons discloses the coupling between the first and second switch fabrics is configurable (see FIG. 9, 35A-B, a combined system of user computer work station 62 which include NMS 60 and a processor 542 configures the connection between cards in the network device (i.e. configuration/provision between line cards (in quadrants) and switch fabrics; see col. 14, line 1 to col. 18, line 65).

Regarding Claim 17, Simons discloses redundant facility protection switching (see FIG. 35A-B, quadrant 2 is redundant of quadrant 1 for facility/line protection switching since the cross-connect card 562 are connected; see col. 49, line 8-67) and redundant non-facility protection switching (see FIG. 35A-B, redundant switching fabric card 570b; see col. 45, line 35-55; see col. 50, line 60-67).

Regarding Claim 20, Simons discloses adjustably configuring coupling between the multiple first switch fabrics and the second switch fabric (see FIG. 9, 35A-B, a combined system of user computer work station 62 which include NMS 60 and a processor 542 changes/adjusts configuration between the line cards (in quadrants) and switch fabrics; see col. 23, line 46 to col. 25, line 15).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 8 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simons in view of Taniguchi (US006456587B2).

Regarding Claim 8 and 19, Simons discloses the first switch fabrics perform facility protection switching in response to multiple simultaneous failures in the network (see col. 49, line 6-26; see col. 45, line 55 to col. 46, line 12; quadrants perform facility/line protection switching (APS, Automatic Protection Switching (APS), 1+1, 1:1, 1:N) upon failures simultaneously/parallel).

Simons does not explicitly disclose within a predetermined time span. However, a switch performing a facility protection switching within predetermined time of 50 ms or less is well known in the art as disclosed by industry standard GR-253-CORE (see attached) so that subscribers on the failed facility would not be affected due to a failure. In particular, Taniguchi teaches the switch fabrics perform facility protection switching within a predetermined time span in response to multiple simultaneous failures in the network (see col. 1, line 52-58; col. 7, line 10-15; switch fabric performing APS switching at no more than 50 ms due to a plurality of failures in the network). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide “within a predetermined time span”, as taught by Taniguchi in the system of Simons, so that it would provide switching at a very high speed and at very fast time after detection of failure; see Taniguchi col. 1, line 50-60.

7. Claim 10 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simons in view of Li (US 20040213205A1).

Regarding Claim 10 and 21, Simons discloses switching plurality of protocols between each quadrants 1-4 and switching fabrics 570 (see FIG. 35A-B, see col. 49, line 45 to col. 50, line 67).

Simons does not explicitly disclose a content processor coupled to and between the first and second switch fabric to convert the signals from a first protocol to a second protocol. In particular, Li teaches a content processor (see FIG. 2, switching circuit 70 or 71) coupled to and between the first (see FIG. 2, ATM/IP switch fabric 66) and second switch fabric (see FIG. 2, TDM switch fabric 62) to convert the signals from a first protocol (see FIG. 2, ATM/IP protocol) to a second protocol (see FIG. 2, TDM/PCM protocol); see page 2-3, paragraph 22-25.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a content processor coupled to and between the first and second switch fabric to convert the signals from a first protocol to a second protocol as taught by Li in the system of Simons, so that it would provide very good economics in scale to high port density; see Li page 5, paragraph 35.

8. Claim 11 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simons in view of Chang (US005920412A).

Regarding Claim 10 and 21, Simons discloses wherein the facility protection switching includes Linear Automatic Protection Switching (LAPS) and 1:n protection switching (see col. 45, line 60-67; see col. 49, line 8-25; performs lines/facility redundancy/protection switching schemes (i.e. Automatic Protection Switching (APS), 1+1, 1:1, 1:N) on the packets/frames/cells).

Simons does not explicitly disclose Unidirectional Path Switched Ring (UPSR) protection switching and Bidirectional Line Switched Ring (BLSR) protection switching. However, UPSR and BLSR protection switching are well known in the art disclosed by standards such as GR-1230-CORE (for BLSR) and GR-1400-CORE (for UPSR) (see www.telcordia.com) so that a network device can interoperate with other network devices using the standard protection switching protocols. In particular, Chang discloses wherein the facility protection switching includes Linear Automatic Protection Switching (LAPS), Unidirectional Path Switched Ring (UPSR) protection switching and Bidirectional Line Switched Ring (BLSR) protection switching (see col. 7, line 15-35).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Unidirectional Path Switched Ring (UPSR) protection switching and Bidirectional Line Switched Ring (BLSR) protection switching, as taught by Chang in the system of Simons, so that it would provide physical circuit protection for improved transport survivability; see Chang col. 7, line 20-25.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian N. Moore whose telephone number is 571-272-3085. The examiner can normally be reached on 9:00 AM- 6:00 PM.

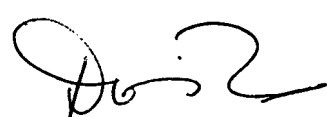
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on 571-272-7629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Ian N. Moore
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5-4-07


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